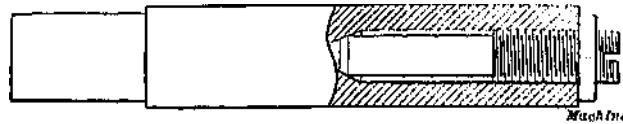


sives, products of the electric furnace, are displacing emery, as they cut faster, producing excellent results in a comparatively short time as compared to emery. Nos. 90 to 150 are used in connection with lead laps for roughing operations. For the final finishing with cast-iron laps, flour abrasive is used. When not in use, any abrasive used for lapping should be kept in a covered box to protect it from dirt and other foreign substances. A small chip or piece of grit will often cut a deep score in a piece of work.

Laps should always be run at a fairly low speed. Fifteen to twenty feet surface speed for a lead lap used for roughing and



**Fig. 17. Usual Form of Cast-iron Lap**

twenty to twenty-five feet surface speed for a cast-iron lap used for finishing are about right. A high surface speed causes the lap to wear out without cutting as rapidly as it should. Many toolmakers make the mistake of running laps too fast, often causing unsatisfactory work. For light lapping, the work can be held by hand, but for a heavy roughing cut it is best to hold the work with an ordinary lathe dog, care being taken to see that the dog is not clamped so tightly as to spring the work out of shape. Lead laps should be split to compensate for wear, and the spindles should have a groove cut along their entire length to prevent the lap from turning.

Before testing with a size plug, the work should be washed with benzine or gasoline to remove all traces of the abrasive material, a few grains of which will wear the size plug below standard size in a surprisingly short time.

Many toolmakers look on the finishing of jig bushings by internal grinding as a rather uncertain method, whereas it is a comparatively simple process when the following important factors are carefully considered. First, proper selection of grinding wheels; second, correct wheel speeds or at least as nearly